William M. Ciesla, Forest Health Management International (Forestryimages.org)

FOUR STEPS TO KILL YOUR PINE FOREST

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Photo 1 - Beetle bait: disaster waiting to happen.

There are many forest insects and diseases that can attack your pine forest, but there are only a few that will cause your pines to die. The leading two pests in Alabama are: southern pine beetle (SPB) and annosus root rot (ARR). Populations of southern pine beetle are cyclic in nature and will build up quickly. The increase in Alabama is usually associated with drought conditions. Where there are several months of drought conditions, especially in the spring, one can expect large populations of beetles and large dollar losses to mortality.

Annosus root rot disease is soil related. Since the disease kills the root system, the effects of ARR show up more intensely during droughts. What you do with your pine forest will affect whether or not these two pests attack, the voracity of the attack, and whether you will lose the entire stand.

Both of these pests can be prevented with a little planning and forethought; OR, you can set yourself up for disaster by following these four steps.

1. Plant a large number of seedlings per acre. When a landowner plants pines, he plants large numbers of seedlings per area ensuring that he will have plenty of trees. Some landowners have the idea that many seedlings will die during the planting and so they plant more to compensate for this loss *(Photo 1)*. Twenty years ago this may have been the case, but today with modern planting techniques and "super" trees, the planting survival rates are 90-100 percent. Modern pine planting techniques include excellent site preparation, use of herbaceous weed control, use of genetically superior seedlings, bedding, sub-soiling, and the use of certified tree planters. Research has shown that planting more than 500 trees per acre causes stands to become beetle bait. These stands will grow fast and reach high susceptibility to SPB before the trees are large enough to cut — either for thinning or when an infestation occurs. Also, the closeness of the trees to each other allows an SPB infestation to

Scott Roberts, Mississippi State University (Forestryimages.org)

Photo 2 - High SPB Hazard: pine stand before thinning, more than 450 trees per acre.

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Photo 3 - Low SPB Hazard: a thinned pine stand with 90 trees per acre.

spread like "wildfire." To prevent SPB attacks at an early age, smart landowners plant no more than 450 trees per acre (approximately a 10 x 10 spacing).

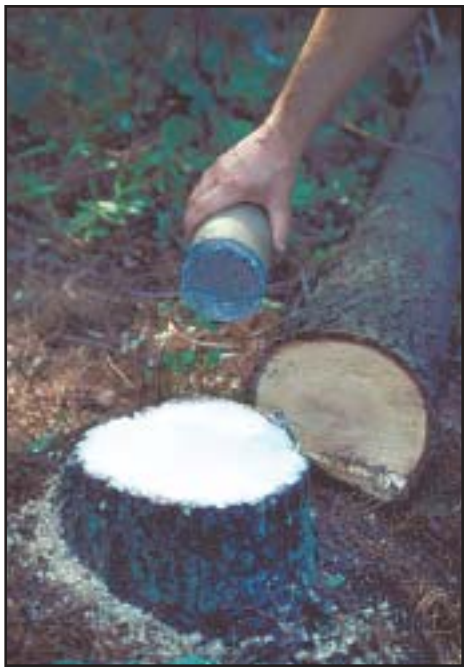
2. Never thin your pine stand. Pine plantations are not a "plant and walk away" proposition. If left alone, all forestland would eventually convert to hardwoods. To keep a forest in pine, the stands must be managed. An acre of land will support a limited amount of healthy trees; above this amount the pines themselves compete with each other. The choice of the landowner is to put this maximum wood volume on a large number of small trees OR put it on a smaller number of large trees. The value of the saw-timber-size trees can be as much as 20 times the value of pulpwood trees. As pines grow they take up more space and put stress on each other. Over time the pines weaken and are easy prey for insects and diseases. Bark beetles — especially southern pine beetles — "smell" these weak trees and attack them with vigor. As the pines grow the overall SPB hazard increases. Managing these pine stands by thinning will keep the trees growing healthy and lower the SPB hazard rating. *(See Photos 2 and 3.)*

3. Thin your pines growing on sandy soils without using annosus root rot prevention. Thinning of your pine stands will decrease the SPB hazard and be economically beneficial for the future. However, all of these benefits will be for nothing if the stand is growing on high hazard annosus root rot soils. Annosus root rot infects the root system of pines, killing feeder roots, reducing growth, and causing death to infected pines. The ARR spores occur in sandy well-drained soils. The spores are normally spread to freshly cut stumps during and immediately after a thinning. The spores land on the stumps and move from the root systems of the stumps to the live pines. The soils of Alabama have been rated for the hazard from annosus root rot. Before any cutting in a pine stand, the soil should be checked to determine the ARR rating and always treat the freshly cut stumps with a chemical called Borax *(Photo 4)*. The Borax will seal the freshly cut stumps, not allowing the ARR spores to enter the stump or the nearby standing live pines.

4. Never control an SPB infestation. "It will go away by itself." If your pine stand becomes infested with SPB, always control the spot as soon as possible to avoid killing more trees. The southern pine beetle has a life cycle of about 30 days (from egg to adult), and they can have as many as 6-7 generations per year. This allows SPB population to go from a few trees to possibly several hundred acres in a short time *(Photo 5)*. Waiting can jeopardize your entire plantation and future economic plans. Always cut the infested pines and a buffer of green pines around the dying trees to ensure complete control of the infestation.

The main ingredient to enjoying a healthy pine forest is planning. If you do not have a written Forest Stewardship Management Plan on your property, acquire one as soon as possible. Any registered forester, a forestry consultant, a forest industry landowner assistance forester, or the Alabama Forestry Commission (AFC) can produce written forest management plans. The best place to begin is by calling your local county AFC office and asking them for assistance. They can either produce the plan themselves or refer you to a consultant in your area.

In summary, get a Forest Stewardship Management Plan for your property, think before you plant large numbers of pines per acre, hazard rate your forest for southern pine beetle and annosus root rot, and thin the pine stands using Borax to reduce the impacts of southern pine beetle and annosus root rot. Pines are an excellent investment but you must protect this investment by using proper forest management techniques.



Robert L. Anderson, USFS (Forestryimages.org)

Photo 4 - Application of Borax as a stump treatment.

Ron Billings, Texas Forest Service (Forestryimages.org)

Photo 5 - Waiting too late to control SPB infestation in a pine plantation.